



University of Pretoria Yearbook 2021

Electrical machines 311 (ELX 311)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	07
Programmes	BEng Electrical Engineering BEng Electrical Engineering ENGAGE
Prerequisites	EIR 211/221
Contact time	1 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Electrical, Electronic and Computer Engineering
Period of presentation	Semester 1

Module content

Magnetic circuits: flux, flux density, reluctance, hysteresis, MMF. Magnetic Energy, Conversion: Process, field energy, mechanical force in electromagnetic systems. Transformers: Types of transformers, per unit system, voltage regulation and efficiency, three phase circuit analysis. Principles of machines: Torque, speed, efficiency and heat loss, circuit models. Machines: Power transformers, DC motors, induction motors.

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